

HISTORIC AMERICAN ENGINEERING RECORD

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HAER  
NY  
15-BUF  
25-

AMERICAN BRASS FOUNDRY  
70 Sayre St.  
Buffalo  
Erie County  
New York

HAER No. NY-311

JET LOWE, PHOTOGRAPHER, JUNE 1986.

- NY-311-1      RAW COPPER SLABS USED IN CASTING OPERATIONS AT BUFFALO PLANT OF AMERICAN BRASS COMPANY. MATERIALS STORAGE FOR THE CAST SHOP NOW OCCUPIES A PORTION OF THE ORIGINAL BRASS MILL BUILT BY THE BUFFALO COPPER AND BRASS ROLLING MILL IN 1906-07 AND EXPANDED IN 1911.
- NY-311-2      DETAIL OF RAW COPPER SLAB SURFACE. PURE COPPER THIS FORM IS DENOMINATED "CATHODE."
- NY-311-3      SCRAP BEING FED INTO HARRIS TGS-200 BALER. BLOCKS OF COMPACTED SCRAP, CALLED "CABBAGES", ARE MELTED DOWN IN THE CAST SHOP, ALONG WITH RAW METAL AND ALLOYS. BALED SCRAP MELTS MORE RAPIDLY THAN LOOSE SCRAP.
- NY-311-4      VIEW OF HARRIS BALER FROM ROOF OF CASTING AND METALS STORAGE OFFICE, LOOKING TOWARD CAST SHOP, THIS MACHINE WAS INSTALLED C. 1975. ITS CREW INCLUDES AN OPERATOR, A HELPER AND A JITNEY DRIVER.
- NY-311-5      "CABBAGES" FROM HARRIS BALER.
- NY-311-6      VIEW OF THE #67 HOLDING FURNACE POURING AT #04 COPPER STATION IN THE CASTING SHOP. (OTHER UNITS MELT BRASS ALLOYS.) THIS IS THE SOUTHERNMOST FURNACE OF THE FOUR PRESENTLY IN SITU. THE CURRENT CASTING SHOP WAS CONSTRUCTED DURING THE EARLY 1970'S, REPLACING THE ORIGINAL PRE-WWI FACILITY. STATIONS #02, 03, AND 04 EACH CONSIST OF A HOLDER FLANKED BY A PAIR OF 800 KW ELECTRIC MELTERS. THE HOLDER IS RATED AT 85,000 LBS. SHAKER BOXES, LOCATED AT THE REAR OF EACH MELTER SUPPLY THE MIXTURE OF INGREDIENTS REQUIRED FOR EACH PARTICULAR ALLOY. ONE MEMBER OF THE THREE-MAN CASTING TEAMS IS RESPONSIBLE FOR SHAKING METAL INTO THE MELTERS. IN THE LOWER RIGHT ARE SHOWN THE MOLD STORAGE AREA AND THE FURNACE BUILDERS' AREA FOR CHIPPING AND REBRICKING OFF-LINE UNITS.

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- NY-311-7      MOLTEN METAL FROM ELECTRIC MELTING FURNACE IS TRANSFERRED THROUGH RUNNER BOX TO HOLDING FURNACE PRIOR TO POURING. VIEW FROM BEHIND "NORTH STATION" IN CAST SHOP. THE RUNNER BOX MUST BE HEATED PRIOR TO THE TRANSFER.
- NY-311-8      FRONT VIEW OF POURING FROM #61 HOLDING FURNACE AT #02 STATION INTO THREE VERTICAL MOLDS SUBMERGED IN A WATER-FILLED TANK BELOW THE CASTING FLOOR. THE CASTING CREW'S JOBS DURING THIS PHASE OF THE OPERATION INCLUDE REGULATING THE POURING RATE AND MONITORING THE VALVE RODS THAT CONTROL THE WATER SPRAYS ON THE MOLDS. DIFFERENT ALLOYS REQUIRE SPECIFIC POURING SPEEDS AND WATER PRESSURES.
- NY-311-9      SIDE VIEW OF #61 HOLDING FURNACE AT #02 STATION. CASTER JIM DURFEE IS POURING BRASS ALLOY INTO MOLDS. ALSO SHOWN IS THE FLAME-RETARDANT ROPE THAT HAS REPLACED ASBESTOS FOR PACKING AROUND THE MOLDS.
- NY-311-10     SIDE VIEW OF PREPARATION FOR PULLING CONTINUOUSLY-CAST "CAKES" FROM MOLDS AT #03 STATION. WHEN THE CAKES HAVE COOLED SUFFICIENTLY, THE CASTER STATION IS MOVED ASIDE TO EXPOSE THE QUENCH TANK AND MOLDS. EACH CAKE OF THE THREE CAKES WEIGHS UP TO APPROXIMATELY 20,000 LBS THE DIMENSIONS OF BRASS CAKES RANGE UP TO 27 1/2" WIDE X 6 3/4" THICK X 25' LONG, CORRESPONDING MAXIMUMS FOR COPPER CAKES ARE 37 1/2" X 5" X 24'. #01 STATION, DATING FROM THE EARLY 1960'S CASTS ONLY A SINGLE BAR (RATHER THAN THREE SIMULTANEOUSLY), THAT IS APPROXIMATELY HALF THE LENGTH OF CAKES FROM THE OTHER STATIONS (150' V. 300") AND WEIGHS UP TO 12,500 LBS.
- NY-311-11     SIDE VIEW OF PULLING CAKES AT #03 STATION. A 50-TON OVERHEAD CRANE WITH 15-TON "GRABBERS" WILL PINCH THE CAKE AT ITS TOP AND PULL IT UPWARD FROM THE MOLD. CAKES ARE THEN CARRIED TO THE WEST SIDE OF THE CAST HOUSE AND LAID ON FLATBED CARS FOR TRANSFER TO THE REROLL BAY.
- NY-311-12     RUNNER BOXES IN CASTING SHOP MAINTENANCE AREA. THE SECTION OF THE PLANT SHOWN IN THE BACKGROUND FORMERLY HOUSED SMALL BRASS AND COPPER FURNACES THAT POURED APPROXIMATLEY 3500 LBS. ROUND BILLETS USED IN THE TUBE SHOP.

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NY-311-13      RUNNER BOX MAINTENANCE. FRANK FEHER USES A COMPRESSED AIR-POWERED CHISEL TO CHIP OUT CONGEALED METAL IN PREPARATION FOR ANOTHER HEAT.

NY-311-14      CHARGING SIDE OF #130 ELECTRIC FURNACE CO. REHEAT FURNACE IN REROLL BAY. CAKES FROM THE CASTING SHOP ARE BROUGHT UP TO ROLLING TEMPERATURE IN ONE OF TWO (#130 AND 146) GAS-FIRED FURNACES. A RADIO-CONTROLLED OVERHEAD CRANE TRANSFERS CAKES FROM FLATCARS TO THE ROLLER LINE LEADING INTO THE FURNACE. CAKES ARE HEATED AT 900-1000 DEGREES FAHRENHEIT FOR THREE TO FOUR HOURS. RATED FURNACE CAPACITY IS 100,000 LBS.\HOUR.

NY-311-15      MAIN DRIVE MOTOR FOR BLISS #43 HOT ROLL. THIS WESTINGHOUSE UNIT HAS SINCE BEEN REPLACED BY A 5000 HP TOSHIBA MOTOR. REHEAT FURNACES ARE SHOWN BEHIND MILL MOTOR.

NY-311-16      HEATED CAKES MECHANICALLY TRANSFERRED FROM REHEATING FURNACE TO RUN-OUT LINE OF #43 HOT MILL FOR STRIP ROLLING.

NY-311-17      STRIP BEING REDUCED IN CROSS-SECTION AND ELONGATED ON RUN-OUT LINE OF #43 HOT MILL. MECHANICAL TRANSFER HAS MOVED INTO POSITION OVER FURNACE DISCHARGE LINE (L) TO RETRIEVE ANOTHER CAKE.

NY-311-18      STRIP BEING REDUCED IN CROSS-SECTION AND ELONGATED ON RUN-OUT LINE OF #43 HOT MILL.

NY-311-19      #43 HOT ROLL, A TWO-HIGH REVERSING MILL THAT PRODUCES THE LONGEST COPPER AND ALLOY STRIP IN THE U.S. INDUSTRY. OVERALL LENGTH OF THE RUN-OUT LINE IS 300'.

NY-311-20      #43 HOT ROLL, HOUSED IN THE REROLL BAY WHICH WAS ADDED TO THE BUFFALO COMPLEX IN 1968-69.

NY-311-21      QUENCH TANK, UPCOILER AND TRIMMER AT DELIVERY END OF #43 HOT ROLL RUN-OUTLINE. UPCOILER SUPPLIED BY TIPPINS MACHINERY CO. PITTSBURGH, PA.

NY-311-22      WORK ROLLS AND BACKUP ROLLS FROM #43 AND #44 MILLS AWAIT DRESSING IN ROLL GRINDER. ROLL SHOP OPERATIONS, INCLUDING REPAIR, CLEANING AND GREASING, ARE HOUSED IN THE REROLL BAY.

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NY-311-23 BETTS-BRIDGEFORD ROLL GRINDING LATHE. INSTALLED C. 1980-1.

NY-311-24 MACHINIST TOM SCHULTZ MEASURES HOT ROLL WITH MICROMETER PRIOR TO GRINDING.

NY-311-25 VIEW LOOKING NORTH IN REROLL BAY SHOWING #43 HOT ROLL RUN-OUT LINE (L) AND LOADING AREA FOR #44 BREAKDOWN MILL (FOREGROUND) IN CENTER BACKGROUND IS TORIN MILLING LINE WITH ASSOCIATED SCRAP RECOVERY SYSTEMS.

NY-311-26 VIEW LOOKING SOUTH IN REROLL BAY TOWARD ROLL MAINTENANCE AREA. #43 TWO-HIGH HOT ROLL STAND (R FOREGROUND) AND DISCHARGE END OF #44 BREAKDOWN ROLL (L FOREGROUND).

NY-311-27 STANDBY TOP AND BOTTOM ROTARY MILLING CUTTERS FOR TORIN LINE. SOME PRODUCT FROM THE #43 HOT ROLL IS PROCESSED ON THE TORIN LINE TO REMOVE OXIDIZED SURFACE MATERIAL. IN PRACTICE 15-20/1000 IS CUT FROM THE UPPER AND LOWER SURFACES OF THE STRIP AND RECYCLED TO THE CASTING SHOP. TORIN LINE ADDED AS PART OF 1981 EXPANSION PROGRAM.

NY-311-28 DISCHARGE END OF TORIN MILLING LINE. UPKOILED PRODUCT IS PACKED WITH TISSUE TO PREVENT SURFACE SCRATCHES.

NY-311-29 LOWERING COIL WITH UPCOILER CRANE (R) AT DISCHARGE END OF TORIN MILLING LINE. INSPECTOR: SHARON DE LAVALLE (R).

NY-311-30 ENTRY STAND A OF PITTSBURGH 4-HIGH, 4-STAND NON-REVERSING #44 BREAKDOWN MILL. PRODUCT IS COLD-REDUCED IN THICKNESS WHILE IMPROVING ITS MECHANICAL PROPERTIES. TANDEM MILL INSTALLED C. 1970. OPERATOR: TIMOTHY KUBALA (R)

NY-311-31 D STAND DELIVERY END OF #44 TANDEM BREAKDOWN MILL WITH UPCOILER. BACKUP ROLLS, 40 TONS. WORK ROLLS, 20 TONS., C. 1900. OPERATING SPEED, 600'/MINUTE. AUTOMATIC GAUGE CONTROL.

NY-311-32 5-STAND, NARROW-GAUGE #40 ROLL. REDUCES PRODUCT, INCLUDING RADIATOR AND TUBE BRASS, TO 3/1000" THICKNESS.

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- NY-311-33 BELL ANNEALING FURNACES FOR LIGHT GAUGE PRODUCTS (LESS THE 10/1000" THICKNESS). COILS INSIDE COVERING SHELLS ARE HEATED BY GAS-FIRED JETS TO TEMPERATURES OF 280-400C., OVER 3-4 HOURS. AFTER COMPLETION OF THE HEATING CYCLE, COILS ARE COOLED SLOWLY TO BELOW 100 DEGREES CELSIUS BEFORE THE SHELL IS REMOVED AND THE COILS REMOVED. THE ENTIRE PROCESS TAKES 24 HOURS.
- NY-311-34 BELL ANNEALING FURNACES, SHOWING EMPLOYEE-DESIGN CENTER POST WITH THREE RADIAL ARMS FOR HANGING COILS. ANNEALING SOFTENS BATCHES OF COILS WHICH HAVE BEEN HARDENED BY ROLLING SO THAT THEY WILL BE SUITABLE FOR FURTHER PROCESSING.
- NY-311-35 TOP OF STRAND ANNEALING TOWER, ONE OF FIVE SUCH STRUCTURES THE BUFFALO PLANT OF AMERICAN BRASS. HEAVIER-GAUGE STRIP IS CONTINUOUSLY ANNEALED TO GIVE THE PRODUCT A MORE UNIFORM GRAIN SIZE AND RENDER IT MORE DUCTILE.
- NY-311-36 BLISS 4-HIGH, SINGLE STAND FINISHING (TEMPER) MILL FOR LIGHT-GAUGE PRODUCTS UP TO 26" WIDE. KNOWN AS THE #47 MILL, THIS REVERSING MILL WAS INSTALLED IN 1981.
- NY-311-37 DETAIL OF CUTTING ROLLS ON #72 BRASS MILL SLITTER, ONE OF THREE CURRENTLY IN OPERATION. BRASS STRIP IS CUT TO CUSTOMER ORDER; COPPER STRIP IS PRODUCED IN STANDARD SIZES.
- NY-311-38 BRASS MILL #72 SLITTER, OPERATED BY JOSEPH WAGNER, FORMERLY AN EMPLOYEE OF REPUBLIC STEEL IN BUFFALO. BRASS STRIP FROM THE SLITTE IS USED ON THE BUFFALO PLANT'S CONTINUOUS SEAMLESS TUBE LINE.
- NY-311-39 SEAMLESS TUBE LINE WHERE BRASS STRIP IS CURVED AND HELIARC WELDED IN A ONE-STEP PROPRIETARY PROCESS AT A RATE OF 135'/MIN.
- NY-311-40 PRESS SHOP. SEVEN BLISS PRESSES STAMP OUT A VARIETY OF CARTRIDGE AND SHELL CASINGS. THIS DEPARTMENT WAS TRANSFORMED FROM A MONEY-LOSING OPERATION TO A PROFIT CENTER UNDER THE FIRST WORKER-MANAGED QUALITY CIRCLE IN THE PLANT.
- NY-311-41 PRESS SHOP, SHOWING 2-TON JIB CRANE USED IN LOADING BRASS STOCK TO FEED PRESSES.

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NY-311-42      DISPLAY OF AMMUNITION PRODUCED ON #8 PRESS (U.S. GOVERNMENT PRESS), SHOWING THE STAGES THROUGH WHICH THE PRODUCTS ARE DRAWN AND FORMED, BEGINNING WITH THE CUPS ON THE LEFT SIDE OF EACH ROW.

NY-311-43      LOADING REEL AND PERFECTO STRIP STOCK FEEDER FOR #84 WATERBURY-FARREL (U.S. GOVERNMENT) PRESS. THIS CONTINUOUS-FEED, 2-DRAW, 100 TON PRESS IS ONE OF TWO IN THE U.S. UNDER CONTRACT WITH THE DEPARTMENT OF DEFENSE FOR PRODUCTION OF BULLET JACKETS AND CARTRIDGE CASINGS.

NY-311-44      REAR VIEW OF #84 PRESS, SHOWING SCRAP EJECTOR (R).

NY-311-45      INTERIOR DETAIL OF #84 WATERBURY-FARREL (U.S. GOVERNMENT) PRESS IN OPERATION.

NY-311-46      BAG HOUSE FOR DUST AND FUME EMISSIONS FROM CASTING SHOP. VIEW LOOKING NORTHWEST.

NY-311-47      OVERVIEW OF AMERICAN BRASS BUFFALO PLANT FROM ROOF OF STRAND ANNEALING TOWER, INCLUDING CASTING SHOP AND BAG HOUSE (CENTER-LEFT) AND PORTION OF REROLL BAY (R). VIEW LOOKING SOUTHWEST.

NY-311-48      OVERVIEW OF AMERICAN BRASS BUFFALO PLANT FROM ROOF OF STRAND ANNEALING TOWER, INCLUDING ORIGINAL BRASS MILL (1906-7, 1911) TUBE MILL (1915), COPPER MILL (1921).

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All color xerographic copies were made from a duplicate color transparency.

JET LOWE, PHOTOGRAPHER, JUNE 1986.

- NY-311-49 (CT)      VIEW OF THE #67 HOLDING FURNACE POURING AT #04 COPPER STATION IN THE CASTING SHOP. (OTHER UNITS MELT BRASS ALLOYS.) THIS IS THE SOUTHERNMOST FURNACE OF THE FOUR PRESENTLY IN SITU. THE CURRENT CASTING SHOP WAS CONSTRUCTED DURING THE EARLY 1970'S, REPLACING THE ORIGINAL PRE-WWI FACILITY. STATIONS #02, 03, AND 04 EACH CONSIST OF A HOLDER FLANKED BY A PAIR OF 800 KW ELECTRIC MELTERS. THE HOLDER IS REHEATED AT 85,000 LBS. SHAKER BOX, LOCATED AT THE REAR OF EACH MELTER SUPPLY THE MIXTURE OF INGREDIENTS REQUIRED FOR EACH PARTICULAR ALLOY. ONE MEMBER OF THE THREE-MAN CASTING TEAMS IS RESPONSIBLE FOR SHAKING METAL INTO THE MELTERS. IN THE LOWER RIGHT ARE SHOWN THE MOLD STORAGE AREA AND THE FURNACE BUILDERS' AREA FOR CHIPPING AND REBRICKING OFF-LINE UNITS.
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- NY-311-51 (CT)      MOLTEN METAL FROM ELECTRIC MELTING FURNACE IS TRANSFERRED THROUGH RUNNER BOX TO HOLDING FURNACE PRIOR TO POURING. VIEW FROM BEHIND "NORTH STATION" IN CAST SHOP. THE RUNNER BOX MUST BE HEATED PRIOR TO THE TRANSFER.
- NY-311-52 (CT)      FRONT VIEW OF POURING FROM #61 HOLDING FURNACE AT #02 STATION INTO THREE VERTICAL MOLDS SUBMERGED IN A WATER-FILLED TANK BELOW THE CASTING FLOOR. THE CASTING CREW'S JOBS DURING THIS PHASE OF THE OPERATION INCLUDE REGULATING THE POURING RATE AND MONITORING THE VALVE RODS THAT CONTROL THE WATER SPRAYS ON THE MOLDS. DIFFERENT ALLOYS REQUIRE SPECIFIC POURING SPEEDS AND WATER PRESSURES.

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- NY-311-53 (CT) SIDE VIEW OF PREPARATION FOR PULLING CONTINUOUSLY-CAST "CAKES" FROM MOLDS AT #03 STATION. WHEN THE CAKES HAVE COOLED SUFFICIENTLY, THE CASTER STATION IS MOVED ASIDE TO EXPOSE THE QUENCH TANK AND MOLDS. EACH CAKE OF THE THREE CAKES WEIGHS UP TO APPROXIMATELY 20,000. THE DIMENSIONS OF BRASS CAKES RANGE UP TO 27 1/2" WIDE X 6 3/4" THICK X 25' LONG, CORRESPONDING MAXIMUMS FOR COPPER CAKES ARE 37 1/2" X 5" X 24'. #01 STATION, DATING FROM THE EARLY 1960'S CASTS ONLY A SINGLE BAR (RATHER THAN THREE SIMULTANEOUSLY), THAT IS APPROXIMATELY HALF THE LENGTH OF CAKES FROM THE OTHER STATIONS (150' V. 300") AND WEIGHS UP TO 12,500 LBS.
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- NY-311-55 (CT) HEATED CAKES MECHANICALLY TRANSFERRED FROM REHEATING FURNACE TO RUN-OUT LINE OF #43 HOT MILL FOR STRIP ROLLING.
- NY-311-56 (CT) STRIP BEING REDUCED IN CROSS-SECTION AND ELONGATED ON RUN-OUT LINE OF #43 HOT MILL.
- NY-311-57 (CT) BRASS MILL #72 SLITTER, OPERATED BY JOSEPH WAGNER, FORMERLY AN EMPLOYEE OF REPUBLIC STEEL IN BUFFALO. BRASS STRIP FROM THE SLITTE IS USED ON THE BUFFALO PLANT'S CONTINUOUS SEAMLESS TUBE LINE.
- NY-311-58 (CT) SIDE VIEW OF #61 HOLDING FURNACE AT #02 STATION. CASTER JIM DURFEE IS POURING BRASS ALLOY INTO MOLDS. ALSO SHOWN IS THE FLAME-RETARDANT ROPE THAT HAS REPLACED ASBESTOS FOR PACKING AROUND THE MOLDS.
- NY-311-59 (CT) VIEW LOOKING NORTH IN REROLL BAY SHOWING #43 HOT ROLL RUN-OUT LINE (L) AND LOADING AREA FOR #44 BREAKDOWN MILL (FOREGROUND) IN CENTER BACKGROUND IS TORIN MILLING LINE WITH ASSOCIATED SCRAP RECOVERY SYSTEMS.